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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,544	09/28/2001	Gan-Moog Chow	N.C. 82,637	3267

26384 7590 05/23/2002

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EXAMINER

SAVAGE, JASON L

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 05/23/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

54

Office Action Summary	Application No. 09/964,544	Applicant(s) CHOW ET AL.	
	Examiner Jason L. Savage	Art Unit 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ |

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Claim Objections

1. Claims 19-20 and 25 are objected to because of the following informalities: Claims 19, 20 and 25 depend from canceled claims 1, 3 and 4 respectively which were canceled by Pre-Amendment A filed 9-28-01. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 22-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrases 'gradually graded' in claim 22 and 'hybrid multilayered materials' in claims 22 and 23 are indefinite since it is unclear as to what would ~~meet~~ constitute 'gradually' and 'hybrid multilayered material'. For Examination purposes, the phrases have been treated as meaning --graded-- and --multilayered materials-- respectively.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Chow et al. (US 5,759,230).

Chow teaches forming different metallic films having a particle size of between 10-80 nm (col. 5, ln. 25 - col. 6, ln. 36 and Table I).

Regarding the limitation in claim 19 that the film is formed by thermally spraying a feedstock solution, the claims are drawn to an article, not the method of making. Absent a showing of the criticality of the claimed method, it does not provide a patentable distinction over the prior art.

Claim Rejections - 35 USC § 102/103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 18-25 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Glumac et al. (US 5,876,683).

Glumac teaches forming ~~/~~nanophase thin films and multilayer coatings (col. 1, ln. 49-63). Although Glumac does not specifically state that the particles in the films and coatings are less than 100 nm in size, the disclosure that the formed structures are nanophase and nanocrystalline indicates that the particle sizes are within the claimed range. In the alternative, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the nanophase films and multilayer coating have nanoparticles less than 100 nm in order to take advantage of the technologically attractive properties offered by nanoparticles.

Regarding the limitation in claims 19-25 that the film is formed by thermally spraying a feedstock solution, the claims are drawn to an article, not the method of making. Absent a showing of the criticality of the claimed method, it does not provide a patentable distinction over the prior art.

Regarding the limitation in claims 20-22 and 24-25 that the film is made of more than one layer ^{and} ~~of~~ the material is graded, Glumac teaches that the nanophase coating may be multicomponent, multiphasic, compositionally modulated, or continuously graded structures (col. 5, ln. 28-39) which anticipates the claim. In the alternative, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the nanophase coating having multiple layers which were of varying compositions or to have formed a functionally graded composite since it is specifically suggested by the reference.

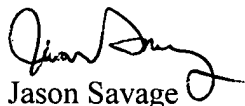
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Regarding claim 23, Glumac is silent as to which materials are used to form a graded structure; however, the Markush group claimed by Applicant encompasses almost all conceivable groupings of materials and the graded multilayer structured formed by Glumac would inevitably be composed of one of the claimed groupings. In the alternative, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed a graded multilayer coating from any combination of materials that would provided enhanced properties, such as a ceramic-ceramic multilayer composite which exhibits enhanced thermal barrier properties, in order to form materials tailored made for their intended use.

8. Any inquiry to this communication or earlier communications from the Examiner should be directed to Jason Savage, whose telephone number is (703)305-0549. The Examiner can normally be reached Monday to Friday from 6:30 AM to 4:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on (703)308-3822.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)308-2351.


Jason Savage

5-18-02


DEBORAH JONES
SUPERVISORY PATENT EXAMINER